

REMARKS

Please reconsider the present application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application.

Disposition of Claims

Claims 1-13 were pending in the present application. By way of this reply, claim 2 has been cancelled. Accordingly, claims 1 and 3-13 are now pending in the present application. Claims 1 and 13 are independent. The remaining claims depend, directly or indirectly, from claim 1.

Claim Amendments

Independent claims 1 and 13 have been amended by way of this reply to incorporate limitations of claim 2. Accordingly, claim 2 has been cancelled without prejudice or disclaimer. Further, claims 3 and 4 have been amended to depend from independent claim 1. No new matter has been added by way of these amendments.

Objection(s)

The abstract was objected to for containing phrases such as “means” or “said.” By way of this reply, the abstract has been amended to remove instances of such terms. Accordingly, withdrawal of the objection is respectfully requested.

Rejection(s) under 35 U.S.C § 102**Claims 1-13**

Claims 1-13 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,819,132 issued to Byrd (hereinafter “Byrd”). Claim 2 has been cancelled in this reply. Thus, this rejection is now moot with respect to claim 2. Independent claims 1 and 13 have been

amended in this reply to clarify the present invention recited. To the extent that this rejection may still apply to the amended claims, the rejection is respectfully traversed.

The present invention is directed to a probe module for sending and/or receiving a signal to and/or from a device under test. As seen with respect to an exemplary embodiment of the present invention shown in Figure 2A, the probe module is formed from two base parts (110, 120). The base part (110) comprises a substrate (111), a plurality of probe pins (112) which are designed to contact the device under test (106), and a plurality of transmission patterns (114, 116) formed on the substrate. One end of each of the signal transmission patterns (114, 116) is coupled to the test head of the semiconductor testing apparatus (10). The other end of each of the signal transmission patterns (114, 116) is joined on the substrate (111) at a point where a probe pin (112) is also joined. Thus, the signal transmission patterns (114, 116) and the probe pin (112) are joined to each other in electrical connection (*see* Specification, paragraphs [0038] – [0040]).

The signal transmission pattern (114) has a pattern gap (113) that prevents an electric signal from being coupled to the probe pin (112). Similarly, the signal transmission pattern (116) has a pattern gap (115) that prevents an electric signal from being coupled to the probe pin (112) (*see* Specification, paragraph [0043]). Switch actuators (123, 124) are provided as exemplary switch means to create short circuits or open circuits across the pattern gaps (113, 115), as necessary (*see* Specification, paragraph [0041]).

The use of a single probe pin with multiple switchable signal transmission patterns allows multiple signals to be sent to or received from the single probe pin. For example, as discussed with respect to Figure 4A, one of the signal transmission lines (*e.g.*, 114) may be used as an input signal line, while the other signal transmission line (*e.g.*, 116) may be used as an output signal line (*see* Specification, paragraphs [0054] – [0055]). By controlling the input and

output signals with the respective switching means (123, 124), interference between the input and output signals can be prevented (*see Specification, paragraph [0056]*).

Accordingly, amended independent claims 1 and 13 of the present invention require that a first switch means and a second switch means are controlled such that a first signal on the first transmission pattern does not interfere with a second signal on the second transmission pattern.

Byrd, in contrast to the present invention, fails to show at least the above limitations of the present invention. Byrd is directed to a probe card for use in electrical testing with protective circuitry to avoid damaging the probe card (*see Byrd, Abstract*). However, the purported switching means of Byrd is merely directed to protective circuitry such as fuses that “trip (*i.e.*, provide an “open” in the conductive trace circuitry) at a current level below an absolute maximum current that the probe card (30) or the IC device under test can handle without being damaged” (*see Byrd, col. 7, lines 37-40*). As further discussed in Byrd, fuses (42) are configured to be self-resetting or easily repaired or replaced such that the probe card (30) may be reused at a later time (*see Byrd, col. 7, lines 32-36*). Similarly, Byrd discusses “active” fuses that automatically reset upon removal of the current overload (*see Byrd, col. 10, lines 40-49*). Byrd teaches that a bimetallic switch may be used as it may cause an open circuit when temperature rises beyond a certain threshold due to an overload of current in the conductive trace (34) (*see Byrd, col 10, line 54 – col. 11, line 17*). It is clear, however, that Byrd does not anticipate a switching means that opens or closes circuitry in response to control signals. Byrd fails to disclose at least a first switch means and a second switch means that are controlled such that a first signal on the first transmission pattern does not interfere with a second signal on the second transmission pattern, as required by amended independent claims 1 and 13 of the present invention.

In view of the above, Byrd fails to show or suggest the present invention as recited in amended independent claims 1 and 13. Thus, amended independent claims 1 and 13 are patentable over Byrd. Dependent claims are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 1, 5, 10, and 11

Claims 1, 5, 10, and 11 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,442,300 issued to Nees et al. (hereinafter “Nees”). Independent claim 1 has been amended in this reply to clarify the present invention recited. To the extent that this rejection may still apply to the amended claims, the rejection is respectfully traversed.

As discussed above, the present invention is directed to a probe module for sending and/or receiving a signal to and/or from a device under test. Nees is directed to a probe for performing electrical measurements of integrated circuits and for visualizing integrated circuits. Nees discloses a single probe (10) having a single metallic probe tip (12) for contacting a semiconductor device. Like Byrd discussed above, Nees fails to disclose at least a first switch means and a second switch means that are controlled such that a first signal on the first transmission pattern does not interfere with a second signal on the second transmission pattern, as required by amended independent claims 1 and 13 of the present invention.

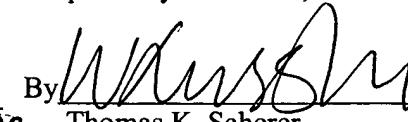
In view of the above, Nees fails to show or suggest the present invention as recited in amended independent claim 1. Thus, amended independent claim 1 is patentable over Nees. Dependent claims are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places the present application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 02008/145001).

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